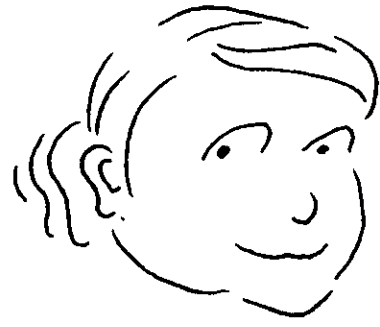


Sound

Grades K-1



Overview

The students will explore sound energy by creating different vibrations using rulers, rubber bands, craft sticks and toilet paper tube kazoos.

Objectives

- To help students understand that energy must be used to produce sound.
- To help students understand that energy causes an object to vibrate, producing sound.

Materials

For the presenter:

- a violin, guitar or any string instrument
- a triangle (metal playing instrument)
- bell
- whistle
- book
- a piece of newspaper
- stapler

For students:

- 1 craft stick
- a wooden ruler
- Two - rubber bands - 1 large enough to fit around the length of the ruler & 1 small enough to fit around the top of a toilet paper tube
- a pencil
- One - 5" x 5" piece of wax paper
- 1 piece of string - 24 inches long
- 1 toilet paper tube
- 1 sandwich bag

Getting Ready

Activity 1

Put all the items for the presenter on a table in front of the class. Cover the objects with a cloth so the students can't see them.

Activity 2

Put all the things each student will need, except for the ruler, in a sandwich bag. This will help the students keep their materials organized and make it easier for you to hand the materials out. Write the words *energy*, *vibration* and *sound* on the chalkboard.

Procedures

Activity 1: - What's That Sound

1. Tell the students that you would like them to close their eyes and see if they can guess what sounds they hear. When they know the sound, ask them to raise their hand. Once heads are down, make a sound with all the objects that you brought. After each sound ask one of the students to guess what made the sound and then show them the object.
2. Ask: "How did the sounds get from my table to you? How do you think sound is made?" Listen to all the students' responses. Some students may know the answers, but many of them will be discovering these concepts for the first time. As you teach this lesson, some students may not make the connection between the words on the board and what they are experiencing. That's OK. The students will take from this experience what they are ready for developmentally. Tell the students that today they are going to explore *sound* and what makes it travel.

Activity 2:- Exploring Sound

1. Before handing out a ruler & the bag of materials to each child, tell them they will have two minutes to see what's in the bag. When they hear you clap your hands twice, they need to put everything back and close the bag. Have one student demonstrate for the class what to do when you clap, to make sure that everyone understands what to do.

2. Hand out the materials. At the end of 2 minutes, clap your hands twice. Wait for everyone to have their bags closed before you begin.

The students should watch you demonstrate the activity and then follow along. Have them put each object back in the bag before taking out another.

3. Place a ruler on the side of your desk or table, hold it down with one hand. The end should stick out over the edge. Using your finger, flip the end of it to produce a vibration. Move the ruler in farther on the table and see if the sound changes.
4. Ask: "What do you hear? Can you feel anything? These are called vibrations." Refer to the word **vibration** on the chalkboard. "What caused the vibration to happen? (*I flipped my ruler*) What did the vibration make?"(**sound**) Write the word **sound** on the board. Let the students experiment with the ruler for a few minutes.
5. "Take out the craft stick. Put it between you teeth and bite down. With you finger, flip the end of the stick. What do you feel?" (**vibrations**)? Continue to use the word **vibrations** during discussion so they will begin to relate the word to the vibrations they are producing. "Does it make a sound like the ruler did? Can you see a vibration? How does it feel?"
6. Take out the large rubber band and your ruler. Put the rubber band around the ruler. Push a pencil under the rubber band. You have a mini guitar. Pluck the rubber band with your finger. Try moving the pencil up and down the ruler and see if you get a different sound.
7. Ask: "What sound do you hear? What is making the sound? (*When I pluck the rubber band it makes vibrations*) **Discussion:** The energy from my finger causes the vibration, which produces sound. Whenever you hear a sound, something is vibrating. It takes energy to make the vibration."
8. "Take out the piece of string. Hold one end of the string up by your ear. Do you hear any sound coming from the string? (**no**) Why not? (**nothing is making a vibration**) Now stretch the string between your two hands. If you need to shorten it, wrap the end around your hand. Hold one end of the string against your ear. Pluck the string with your thumb. What do you hear? Does it sound the same as the rubber band did? Where did the energy come from that made the vibrations? Where did the sound come from?"

9. "Take out the toilet paper tube, wax paper and small rubber band. Put the wax paper over the top of the tube and use the rubber band to keep it in place. Hum into the tube. Place your finger on the end of the tube to see how it feels."
10. "Can you feel the vibrations? Where is the energy coming from to make the vibrations? (*air blowing from my mouth*) Can you change the sound by humming soft or loud? Try watching your neighbor's tube to see if the wax paper moves. Can you see the vibrations?"
11. Have the students put all the items in their bag. They may take them home to share what they learned today about sound.

Closure

Hold up the string instrument you brought. Strum it once. Ask the students what they heard (*sound*). "What made the sound? (*vibrations*) What caused the vibrations?" (*your energy when you plucked the strings*)

Clean up

Students put their bags away.